

**Lower Moreland School District:
“Athletic Department Protocol and Procedures for Management of Sports-Related Concussion”**

Preamble:

Medical management of sports-related concussion is evolving. In recent years, there has been a significant amount of research into sports-related concussion in high school athletes. Lower Moreland School District has established this protocol to provide education about concussion for athletic department staff and other school personnel. This protocol outlines procedures for staff to follow in managing head injuries, and outlines school policy as it pertains to return to play issues after concussion.

Lower Moreland School District seeks to provide a safe return to activity for all athletes after injury, particularly after a concussion. In order to effectively and consistently manage these injuries, procedures have been developed to aid in insuring that concussed athletes are identified, treated and referred appropriately, receive appropriate follow-up medical care during the school day (including academic assistance), and are fully recovered prior to returning to activity.

In addition to recent research, two (2) primary documents were consulted in developing this protocol. The “Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004”ⁱ(referred to in this document as the Prague Statement), and the “National Athletic Trainers’ Association Position Statement: Management of Sport-Related Concussion”ⁱⁱ(referred to in this document as the NATA Statement).

This protocol will be reviewed on a yearly basis, by the LMHS medical staff. Any changes or modifications will be reviewed and given to athletic department staff and appropriate school personnel in writing.

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I. Recognition of concussion

A. Common signs and symptoms of sports-related concussion

1. Signs (observed by others):

- Athlete appears dazed or stunned
- Confusion (about assignment, plays, etc.)
- Forgets plays
- Unsure about game, score, opponent, location, etc.
- Moves clumsily (altered coordination)
- Balance problems (often presents with athlete looking down while walking/running)
- Personality/mood change
- Responds slowly to questions
- Forgets events prior to hit
- Forgets events after the hit
- Loss of consciousness (any duration)

2. Symptoms (reported by athlete):

- Headache
- Fatigue
- Nausea or vomiting
- Double vision, blurry vision
- Sensitive to light or noise
- Feels sluggish
- Feels “foggy”
- Problems concentrating
- Problems remembering

3. These signs and symptoms are indicative of a probable concussion. Other causes for symptoms should also be considered (illness, nutritional considerations, preexisting or congenital medical condition).

B. Cognitive impairment (altered or diminished cognitive function)

1. General cognitive status can be determined by simple sideline cognitive testing.
2. The athletic trainer may utilize SCAT (Sports Concussion Assessment Tool)ⁱⁱⁱ, SAC, sideline ImPACT, or other standard tool for sideline cognitive testing.
 - a. Coaches should utilize the basic UPMC cognitive testing form, provided in their team’s medical kit. (Appendix C)

II. ImPACT Neuropsychological Testing Requirements

1. ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) is a research-based software tool utilized to evaluate recovery after concussion. ImPACT evaluates multiple aspects of neurocognitive function, including memory, attention, brain processing speed, reaction time, and post-concussion symptoms.
 - a. Neuropsychological testing is utilized to help determine recovery after concussion in order to insure safe return to play for the athletes.
2. Athletes participating in school sports in Lower Moreland School District are required to take a baseline ImPACT test prior to participation in their sport's season.
 - a. Athletes will watch a video of the story of Preston Plevretes, who suffered a second impact syndrome injury while playing football, to enhance awareness of dangers of participating in athletics with a concussion.
3. Athletes are required to take their initial baseline test prior to competing in athletics in grade 7. Athletes will take a ‘new’ baseline test when entering grades 9 and 11 as well as if they suffered a concussion the previous school year. All new athletes will be tested prior to participating in athletics at Lower Moreland and will thereafter follow the testing schedule as outlined above.

III. Management and Referral Guidelines for All Staff

A. Guidelines for Management of Sports-Related Concussion^{iv}

1. Any athlete with a witnessed loss of consciousness (LOC) of any duration will be spine boarded and transported immediately to nearest emergency department via emergency vehicle.
2. Any athlete who has symptoms of a concussion, and who is not stable (i.e., condition is changing or deteriorating), is to be transported immediately to the nearest emergency department via emergency vehicle.
3. An athlete who exhibits any of the following symptoms should be transported immediately to the nearest emergency department, via emergency vehicle.
 - a. deterioration of neurological function
 - b. decreasing level of consciousness
 - c. decrease or irregularity in respirations
 - d. decrease or irregularity in pulse
 - e. unequal, dilated, or unreactive pupils
 - f. any signs or symptoms of associated injuries, spine or skull fracture, or bleeding
 - g. mental status changes: lethargy, difficulty maintaining arousal, confusion or agitation
 - h. seizure activity (Usually Grand Mal)
 - i. cranial nerve deficits
4. An athlete who is symptomatic but stable, may be transported by his or her parents. The parents should be advised to contact the athlete's **primary care physician, or seek care at the nearest emergency department**, on the day of the injury if possible.
 - a. The parents **ALWAYS** have the option of emergency transportation.

IV. Procedures for the Certified Athletic Trainer (AT)

1. The Athletic Trainer will assess the injury or provide guidance to the coach if unable to personally attend to the athlete.
2. Immediate referral to the athlete's primary care physician or to the hospital will be made when medically appropriate (see section III).
3. The Athletic Trainer will perform serial assessments following recommendations in the NATA Statement, and utilize the SCAT (Sport Concussion Assessment Tool), as recommended by the Prague Statement, or sideline ImpACT, if available. The clinical assessment will also incorporate vestibular screening.
4. The Athletic Trainer will notify the athlete's parents and give written and verbal home and follow-up care instructions.
5. The Athletic Trainer will notify the school nurse of the injury, prior to the next school day, so that the school RN can initiate appropriate follow-up in school immediately upon the athlete's return to school.
6. The Athletic Trainer will continue to provide coordinated care with the school RN, for the duration of the injury.
7. The Athletic Trainer will communicate with the athlete's guidance counselor regarding the athlete's neurocognitive and recovery status.
8. The Athletic Trainer is responsible for administering post-concussion ImpACT testing. The initial post-concussion test will be administered within 24-48 hours post-injury, whenever possible.
 - a. Post-injury tests are never administered on the day of injury as it often takes several hours for cognitive deficits to present.
 - b. Repeat post-concussion tests will be given at appropriate intervals, dependent upon clinical presentation.
9. The Athletic Trainer will review post-concussion test data with the athlete and the athlete's parent.

10. The Athletic Trainer will forward testing results to the athlete's treating physician (with parental permission and a signed release of information form).
11. The Athletic Trainer or the athlete's parent may request that a specialist and/or neuropsychological consultant review the test data. **At Lower Moreland the recommended consultant is Dr. Thomas Watanabe, M.D., director of Moss Rehab's Drucker Brain Injury Center.** The athlete's parents will be responsible for charges associated with the consultation.
12. The Athletic Trainer will monitor the athlete, and keep the School Nurse informed of the individual's symptomatology and neurocognitive status, for the purposes of developing or modifying an appropriate health care plan for the student-athlete.
13. The Athletic Trainer is responsible for monitoring recovery & coordinating the appropriate return to play activity progression.
14. The Athletic Trainer will maintain appropriate documentation regarding assessment and management of the injury.

V. Guidelines and procedures for coaches: **RECOGNIZE, REMOVE, REFER**

A. **Recognize** concussion

1. All coaches should become familiar with the signs and symptoms of concussion that are described in section I.
2. Very basic cognitive testing should be performed to determine cognitive deficits.
 - a. See appendix C. (a cognitive testing form is included in each team's med kit)

B. **Remove** from activity

1. If a coach suspects the athlete has sustained a concussion, the athlete should be removed from activity until evaluated medically.
3. **Any athlete who exhibits signs or symptoms of a concussion must be removed immediately, assessed, and will not be allowed to return to activity that day.**

C. **Refer** the athlete for medical evaluation

1. ***Coaches should report all head injuries to the LMSD Certified Athletic Trainer (AT), as soon as possible, for medical assessment and management, and for coordination of home instructions and follow-up care.***
 - a. The Athletic Trainer can be reached at:
(267)249-1526 or (267)481-4364.
 - b. The Athletic Trainer will be responsible for contacting the athlete's parents and providing follow-up instructions.
2. Coaches should seek assistance from the host site Athletic Trainer if at an away contest.
3. If the LMSD AT is unavailable, or the athlete is injured at an away event, the **coach** is responsible for notifying the athlete's parents of the injury.
 - a. Contact the parents to inform them of the injury and make arrangements for them to pick the athlete up at school.
 - b. Contact the LMSD Athletic Trainer at the above number, with the athlete's name and home phone number, so that follow-up can be initiated.
 - c. Remind the athlete to report directly to the school nurse before school starts on the day he or she returns to school after the injury.
4. Physician Referral
 - a. All athletes who have sustained a concussion must be evaluated by a physician for a formal diagnosis and treatment plan.
 - c. **At Lower Moreland, the recommended physician for concussion evaluation and treatment is Dr. Thomas Watanabe, M.D., director of Moss Rehab's Drucker Brain Injury Center.**
 - i. Dr. Watanabe specializes in concussion management and is a Credentialed ImPACT Consultant (CIC).
 - ii. Dr. Watanabe is often able to see our athletes within 48 hours of injury and has been instrumental in the safe return to play of our athletes.
4. In the event that an athlete's parents cannot be reached, and the athlete is able to

be sent home (rather than directly to ER):

- a. The Coach or Athletic Trainer should insure that the athlete will be with a responsible individual, who is capable of monitoring the athlete and understanding the home care instructions, before allowing the athlete to go home.
- b. The Coach or Athletic Trainer should continue efforts to reach the parent.
- c. If there is any question about the status of the athlete, or if the athlete is not able to be monitored appropriately, the athlete should be referred to the emergency department for evaluation. A coach will accompany the athlete and remain with the athlete until the parents arrive in accordance with the LMSD Emergency Action Plan (EAP).
- d. Athletes with suspected head injuries will not be permitted to drive home. They must be picked up by a reliable family member who can closely monitor the individual over the hours following the injury.**

VI. FOLLOW-UP CARE OF THE ATHLETE DURING THE SCHOOL DAY

A. Responsibilities of the school nurse after notification of student's concussion

1. The athlete will be instructed to report to the school nurse upon his or her return to school. At that point, the school nurse will:
 - a. re-evaluate the athlete utilizing a graded symptom checklist. (Appendix A)
 - b. provide an individualized health care plan based on both the athlete's current condition, and initial injury information provided by the Athletic Trainer or parent.
2. Notify the student's guidance counselor and teachers of the injury immediately via the physician evaluation and individualized care plan form (Appendix B)
3. Notify the student's P.E. teacher immediately that the athlete is restricted from all physical activity until further notice.
4. If the school RN receives notification of a student-athlete who has sustained a concussion from someone other than the Athletic Trainer (athlete's parent, athlete, physician note), the Athletic Trainer must be notified as soon as possible, so that an appointment for ImPACT testing can be made.
5. Monitor the athlete on a regular basis during the school day.

B. Responsibilities of the student's guidance counselor:

1. Monitor the student closely and recommend appropriate academic accommodations for students who are exhibiting symptoms of post-concussion syndrome.
2. Communicate with school health office on a regular basis, to provide the most effective care for the student.

VII. RETURN TO PLAY (RTP) PROCEDURES AFTER CONCUSSION

A. Returning to participate on the same day of injury

1. As previously discussed in this document, an athlete who exhibits signs or symptoms of concussion, or has abnormal cognitive testing, **will not** be permitted to return to play on the day of the injury. Any athlete who denies symptoms but has abnormal sideline cognitive testing will be held out of activity.
 - a. “When in doubt, hold them out.”

B. Return to play after concussion

1. The athlete must meet all of the following criteria in order to progress to activity:
 - a. Asymptomatic at rest and with exertion (including mental exertion in school)
 - b. Within normal range of baseline on post-concussion ImPACT testing
 - c. Within normal range of baseline BESS testing
 - d. Have written clearance from treating physician or specialist (athlete must be cleared for progression to activity by a physician other than an Emergency Room physician).
2. Once the above criteria are met, the athlete will be progressed back to full activity following a stepwise process, (as recommended by both the Prague and NATA Statements), under the supervision of the Athletic Trainer.
3. Progression is individualized, and will be determined on a case by case basis. Factors that may affect the rate of progression include: previous history of concussion, duration and type of symptoms, age of the athlete, and sport/activity in which the athlete participates. An athlete with a prior history of concussion, one who has had an extended duration of symptoms, or one who is participating in a collision or contact sport will be progressed more slowly.
4. Stepwise progression as described in the Prague Statement:
 - a) No activity – do not progress to step 2 until asymptomatic
 - b) Light aerobic exercise – walking, stationary bike
 - c) Sport-specific training (e.g., skating in hockey, running in soccer)
 - d) Non-contact training drills
 - e) Full-contact training after medical clearance
 - f) Game play

Note: If the athlete experiences post-concussion symptoms during any phase, the athlete will drop back to the previous asymptomatic level and resume the progression after 24 hours.
5. The Athletic Trainer and athlete will discuss appropriate activities for the day. The athlete will be given verbal and written instructions regarding permitted activities. The Athletic Trainer and athlete will each sign these instructions. One copy of this form is for the athlete to give to the coach, and one will be maintained by the Athletic Trainer.
6. The athlete will see the Athletic Trainer daily for re-assessment and instructions until he, or she, has progressed to unrestricted activity, and been given a written report to that effect, from the Athletic Trainer.

Graded Symptom Scale Checklist

Evaluate all signs and symptoms, ranking each on a scale of 0-6, where 0 = not present, 1 = mild, 3 = moderate, and 6 = most severe. The GSC should be used not only for the initial evaluation but for each subsequent follow-up assessment until signs and symptoms have cleared at rest and during physical exertion.

Symptom	Initial Eval date	Date & Time	Date & Time	Date & Time	Date & Time
Blurred Vision					
Dizziness					
Drowsiness					
Excess sleep					
Easily distracted					
Fatigue					
Feel 'in a fog'					
Feel 'slowed down'					
Headache					
Inappropriate emotions					
Irritability					
Loss of consciousness					
Loss of orientation					
Memory problems					
Nausea					
Nervousness					
Personality Change					
Poor balance/coordination					
Poor concentration					
Ringing in ears					
Sadness					
Seeing stars					
Sensitivity to light					
Sensitivity to noise					
Sleep disturbance					
Vacant stare/glassy eyed					
Vomiting					
Total score					

Lower Moreland School District Traumatic Brain Injury Form

(To be completed by treating physician)

Patient Name: _____

Date: _____

Physician's Diagnosis: _____

Returning to School

Until you have recovered, the following supports are recommended: (check all that apply)

No return to school. Return on (date) _____ or see referral plan below

Return to school with the following supports. **

Shortened day. Recommend _____ hours per day until (date) _____

Lessen homework load by _____% per class.

No tests or quizzes at this time.

Take rest breaks during the day as needed (to be coordinated with guidance & nurse upon return to school)

Additional Comments/Supports: _____

****These academic supports are effective immediately and will be reviewed on (date) _____**

Returning to Physical Activity

You should NEVER return to play if you still have ANY symptoms – (Be sure that you do not have any symptoms at rest and while doing any physical activity and/or activities that require a lot of thinking or concentration.)

Physical Activity:

Do not return to **Physical Education** class at this time (see referral plan for follow-up date)

Return to the following types of **Physical Education** class activities: (check/circle all that apply)

Contact activities (Floor hockey/Soccer/Handball/Basketball/Softball/Volleyball, etc...)

Non-Contact activities (Badminton/Tennis/Square-dance)

Fitness (Strength training/Cardiovascular training/Swimming)

Return to **Physical Education** class without restriction on the following date: _____

Athletics:

Do not return to **school sports** practices/games at this time

Return to **school sports** following the completion of the 6 step process under the direction of the **Athletic Trainer** outlined in the *Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004*

Additional Comments: _____

Referral Plan

Return to this office. Date/Time _____

Refer to: Neuropsychology, Neurology, Sports Medicine, Physiatrist, Psychiatrist,

Other Referral Plan: _____

Physician's Name (please print) _____

Physician's Address: _____

Phone/Fax: _____ / _____

Physician's Signature: _____

i McCrory P, et al. Summary and Agreement Statement of the 2nd International Conference on Concussion in Sport, Prague 2004. *Clin J Sports Med.* 2005; 15(2):48-55.

ii Guskiewicz KM, et al. National Athletic Trainers' Association Position Statement: Management of Sport- Related Concussion. *J Athl Train.* 2004;39(3):280-297.

iii McCrory P, et al

iv Guskiewicz KM, et al